



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,582	10/09/2003	Kotesh Kummamuri Rao		2581

36/024 7590 01/13/2009

NIXON & VANDERHYE P.C.
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

SERROU, ABDELALI

ART UNIT

PAPER NUMBER

2626

MAIL DATE

DELIVERY MODE

01/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/605,582

Applicant(s)

RAO ET AL.

Examiner

Abdelali Serrou

Art Unit

2626

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Response to Amendment

1. In response to the advisory action mailed on 10/20/08, applicant filed an RCE on 11/3/08, amending claim 1. Claims 7-12 were previously canceled. The pending claims are 1-6.

Response to Arguments

2. Applicant's arguments filed 11/3/08 have been fully considered but they are not persuasive. Applicant argues that neither Makagon nor Blum teach or suggest technology that is operable to recognize and distinguish human voice command and other spoken information in very noisy environments. The examiner points out that Makagon teaches a network system for voice interaction between communications-center applications and human agents by means of speech recognition application (see Abstract). Makagon's human agents, whether they outside or in a home office environment, typically, experience a predictable background noise environment, and in order to enhance the speech signal and achieve speech recognition noise suppression is a necessary step within this process of speech recognition. Therefore, Makagon teaches noise suppression. As per Blum, applicant states that Blum does not teach or suggest performing noise suppression to reduce or substantially eliminate non-speech ambient background noise, rather, the Blum patent only suggests that in noisy environments one could use a microphone having high directional sensitivity to filter through sounds coming from a particular direction while blocking out random environmental noise which is not a form of noise suppression per se but rather an application of sonic selectivity through the use of directional exclusivity. The examiner notes that noise suppression is known as "active noise control", "noise cancellation", and "active noise reduction"..., which is simply a method of reducing unwanted sound. Blum teaches

blocking out random environmental noise, as evidenced by Blum's col. 8, lines 38-39. Furthermore, Blum teaches noise suppression in a very noisy environment (see col. 8, lines 51-54). Therefore, the combination of Makagon and Blum teach the subject matter of claim 1, and they combinable, as opposed to applicant's argument, because Makagon teach the technology that is operable to recognize and distinguish human voice command and other spoken information in noisy environments without explicitly stating that his speech recognition is made in a very noisy environment. For this reason, Blum is brought to add the feature of suppressing noise in a very noisy environment. The success and the motivation of combining Blum's feature of suppressing noise from speech signals in very noisy areas with the wireless communication system of Makagon is summarized in providing an improved method and apparatus for suppressing background noise in high background noise environments without significantly degrading the voice quality.

As per the newly added features of having a first stage of analog domain active noise cancellation, and second stage of adaptive digital domain noise cancellation. The examiner notes that with regard to the first stage, Blum teaches directional microphones (col. 8, lines 51-54) and directional microphones minimize the background noise, as evidenced by applicant's disclosure on [0024]. With regard to the second stage, Makagon's speech recognition process necessarily discloses this step. Otherwise, the input speech would not be recognized, as explained above. Furthermore, without reaching to the disclosure of the prior art used, applicant himself admits that those techniques are conventional and well known (see [0024]-[0025]).

Therefore, the combination of prior art used to reject claims 1-6 of the current application stands valid.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makagon et al. (hereinafter, Makagon, U.S 7,222,301) in view of Blum et al. (hereinafter, Blum, U.S 6,982,649).

As per claim 1, Makagon teaches:

an information processing system including an equipment controller and at least one fixed point wireless communications access station, the information processing system receiving and processing data or commands from one or more wireless communications access station relating to said machinery or equipment, and the controller controlling operation of the machinery or equipment in response to data or commands from the information processing system; and a voice-responsive computing/communications device (col. 4, line 64 – col. 5, line 11), operating in conjunction with a microphone (speech input, Abstract) said communications device including a speech recognition engine implementing speech-specific noise elimination and statistical noise cancellation process capable of processing speaker-independent speech recognition (required step by the process of recognizing speech input, col. 4, lines 6-7), wherein the voice responsive/communication device is in wireless communication with the information processing system via at least one fixed point wireless communications access station and is responsive to one or more voiced commands and/or spoken information of a user for

communicating data to the information processing system and/or generating operational control commands to provide to the equipment controller for controlling said machinery or equipment (col. 4, line 64 – col. 5, line 22, especially col. 5, lines 11-22, wherein one or more utterances (speech) are communicated via wireless network to the central applications for recognizing the speech and generating VXML scripts and playing them as synthesized scripts media).

Makagon does not explicitly teach providing background noise suppression to reduce or substantially eliminate non-speech ambient background noise in high background noise environments.

Blum in the same field of endeavor teaches providing background noise suppression to reduce or substantially eliminate non-speech ambient background noise in high background noise environments (col. 8, lines 38-54, wherein noise suppression is performed in an environment (very noisy, col. 8, lines 51-54)).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to combine Blum's noise suppressor with the system of Makagon, because this would enhance the sound quality and provide a better speech recognition.

As per the claimed first stage of analog domain active noise cancellation, and second stage of adaptive digital domain noise cancellation. It has been well known in the art to have a first stage of analog domain active noise cancellation, and second stage of adaptive digital domain noise cancellation, as evidenced by applicant's disclosure in [0024]-[0025].

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to use those two techniques in order to better monitor environmental noise.

As per claim 2, Makagon teaches wherein said information processing system comprises a local area network (LAN) (col. 9, lines 23-24).

As per claim 3, Makagon does not explicitly teach a directional microphone.

Blum in the same field of endeavor teaches a directional microphone (col. 8, lines 33-34).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to combine Blum's directional microphone with the voice-responsive computing/communications device of Makagon, because this would enhance the sound quality and provide a better speech recognition.

As per claim 4, Makagon teaches a wireless communications network (WLAN) that permits digital communications with at least one remote private network or computer facility (col. 5, lines 23-29).

As per claim 5, Makagon teaches wherein the wireless communication network comprises at least one antenna assembly having a transceiver system for transmitting and receiving signals from at least one wireless communications LAN access station (inherently disclosed for receiving wireless electromagnetic signals and processing communication information).

As per claim 6, Makagon teaches wherein said at least one remote private network or computer facility comprises a network server computer communicatively coupled to said voice-

responsive computing/communications device via the wireless communications network, said server computer including a database for storing application data accessible by a user of said voice-responsive computing/communications device (col. 8, lines 24-43).

Conclusion

Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention. When responding to this office action, applicants are advised to clearly point out the patentable novelty which they think the claims present in view of the state of the art disclosed by the references cited or the objections made. Applicants must also show how the amendments avoid such references or objections. See 37C.F.R. 1.111(c). In addition, applicants are advised to provide the examiner with the line numbers and pages numbers in the application and/or references cited to assist examiner in locating the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelali Serrou whose telephone number is 571-272-7638. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth can be reached on 571-272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Abdelali Serrou/
Examiner, Art Unit 2626
1/8/09

/David R Hudspeth/
Supervisory Patent Examiner, Art Unit 2626